K093905

JUN 22 2010

SUBMITTED BY:

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NAME OF DEVICE:

Trade Name:	Elecsys® Anti-HAV IgM Elecsys® PreciControl anti-HAV IgM
Common Name:	Anti-HAV IgM Test System PreciControl anti-HAV IgM
Classification Name:	Anti-HAV IgM Test System Quality Control Material (Assayed and Unassayed)
Product Code:	LOL, JJX
Predicate Device:	Abbott Axsym HAVAB-M 2.0 Assay (P790019/S011)

DEVICE DESCRIPTION:

Intended Use: The Roche Elecsys Anti-HAV IgM immunoassay is used for the in vitro qualitative detection of IgM antibodies to hepatitis A virus (anti-HAV IgM) in human serum and plasma (potassium EDTA, lithium or sodium heparin, sodium citrate). The assay is intended for use as an aid in the laboratory diagnosis of an acute or recently acquired hepatitis A virus infection.
Assay results, in conjunction with other laboratory results and clinical information, may be used to provide presumptive evidence of infection with hepatitis A virus in persons with signs and symptoms of hepatitis and in persons at risk for hepatitis A infection.

The electrochemiluminescence immunoassay "ECLIA" is intended for use on Elecsys and **cobas e** immunoassay analyzers.

Kit Description: The Elecsys Anti-HAV IgM immunoassay utilizes a µ-capture test concept based on a monoclonal h-IgM directed biotinylated antibody, cell culture derived Hepatitis A Virus and a ruthenylated monoclonal antibody directed to HAV. Capture of formed immune complexes from the reaction mixture is based on biotin binding to streptavidin-coated magnetic microparticles which are collected on a measuring cell electrode. Signal generation is triggered by the application of a voltage to the electrode (electrochemiluminescence technology). The level of signal count detected by the system increases as the concentration of the IgM antibody target present in a patient sample increases.

The Elecsys PreciControl Anti-HAV IgM contains control serum based on human serum in the negative and positive concentration range. The controls are used for monitoring the accuracy of the Elecsys Anti-HAV IgM immunoassays.

Table 1. Anti-HAV IgM Immunoassay Comparison

Feature	Elecsys Anti-HAV IgM Assay	Predicate Device Abbott Axsym HAVAB-M 2.0 Assay (P790019/S011
Assay Protocol	μ-Capture test principle	Direct Binding principle
Detection Protocol	**E**lectrochemi**l**uminescence **i**mmuno**a**ssay (ECLIA)	MEIA
Traceability/ Standardization	Roche Internal Standard	Not Given
Sample Type	Human serum and plasma	Same
Instrument Platform	Elecsys 2010 (Request for CLIA categorization has been made to add the MODULAR ANALYTICS E170, **cobas e** 411, and **cobas e** 601 analyzers according to the Replacement Reagent and Instrument Policy).	AxSYM System
Interpretation of Results	≥1.10 Reactive ≥ 0.90 - < 1.10 Grayzone <0.9 Negative	>1.20 Reactive 0.80 -1.20 Grayzone <0.80 Nonreactive
Calibration Interval	Once per reagent lot and • After 1 month (28 days) when using the same reagent lot • After 7 days (when using the same reagent kit on the analyzer) • As required: e.g. quality control findings outside the specified limits	A single sample of both the Negative and Positive Controls must be tested as a means of evaluating the assay calibration. Once the calibration is accepted and stored, all subsequent samples may be tested without further calibration unless one or more of the following occur: • A reagent pack with a new lot number is used • Either of the AxSYM HAVAB-M 2.0 Control values is out of its specified range • The MEIA Optics Verification Update has been performed
Controls	Elecsys PreciControl Anti-HAV IgM	Abbott AxSYM HAVAB-M 2.0 Controls

PERFORMANCE DATA:

COMPARATIVE TESTING:

A multi-center study was conducted in the U.S. to characterize the performance of the Elecsys Anti-HAV IgM immunoassay. All subjects were tested with the Elecsys Anti-HAV IgM assay on the Elecsys 2010 analyzer and with an FDA-cleared reference method in strict accordance with the manufacturer's package insert instructions.

A total of 1087 samples were obtained from multiple specimen sources, representing subjects for whom routine hepatitis A testing had been ordered, hospitalized patients, subjects at increased risk for hepatitis, subjects with signs and symptoms of hepatitis, subjects characterized with acute hepatitis A, and subjects below the age of 21 years (pediatric/adolescents).

The positive percent agreement and the negative percent agreement results for the overall clinical population are presented in the following table:

Summary of percent agreements for the various specimen cohorts: Elecsys Anti-HAV IgM results versus 1st reference anti-HAV IgM assay[p]				
Cohort	Positive percent agreement % (x/n)	95 % confidence interval	Negative percent agreement % (x/n)	95 % confidence interval
Routine HAV testing	50.0 (1/2)	1.26 - 98.7	99.0 (207/209)	96.6 - 99.9
Hospitalized	0.00 (0/0)	0.00 - 100	100 (216/216)	98.3 - 100
High risk for hepatitis	0.00 (0/0)	0.00 - 100	100 (215/215)	98.3 - 100
Signs and symptoms	0.00 (0/0)	0.00 - 100	99.5 (211/212)	97.4 - 99.99
Characterized acute HAV	98.3 (117/119)	94.1 - 99.8	73.3 (11/15)	44.9 - 92.2
Pediatric/ adolescent	0.00 (0/0)	0.00 - 100	100 (99/99)	96.3 - 100
Overall	97.5 (118/121)	92.9 - 99.5	99.3 (959/966)	98.5 - 99.7

p) Additional testing was performed for the discrepant and several concordant specimens with a second FDA cleared anti-HAV IgM assay. The second predicate agreed with the Elecsys outcome in 7 of the 10 discrepant samples and with the first predicate in 2 of the 10 specimens. No consensus was obtained in the remaining specimen. Complete concordance was obtained among the three assays in the fifteen non-reactive and reactive concordant specimens also tested.

ANALYTICAL SENSITIVITY:

Three commercially available HAV seroconversion panels were tested using Elecsys Anti-HAV IgM immunoassay and the FDA approved comparator assay to determine the sensitivity of the assay. Results were also compared with the data supplied by the vendor. The comparator assay and vendor assay are based on the Abbott HAVAB-M. The results are summarized in the following table:

Panel ID	Elecsys 2010 assay		Comparator anti-HAV IgM assay [c]		Comparator anti-HAV IgM assay [d]	
	Post bleed day of earliest reactive result	Post bleed day of last positive result	Post bleed day of earliest reactive result	Post bleed day of last positive result	Post bleed day of earliest reactive result	Post bleed day of last positive result
HAV-01	0	21	0	34	0	28
PHT 902The panel was not tested with the reference assay due to the limited sample size tested.	16	21	not tested	not tested	16	21
RP013	9	162	51	85	51	85

c) The comparator results were shown by Roche using the Abbott AxSym HAVAB-M 2.0 assay.
d) The comparator results were provided by Vendor using the Abbott HAVAB-M assay.

EXPECTED VALUES:

The Elecsys Anti-HAV IgM assay was used to evaluate the prevalence of HAV IgM antibodies in an apparently healthy population (normal, healthy individuals without symptoms). The U.S. (New Mexico) and 302 patients were from the low risk region Eastern states of the U.S. (Indiana). The prospective study population was comprised of 208 (34.6 %) males and 394 (65.4 %) females including 493 (81.9 %) Caucasians, 32 (5.3 %) African Americans, 6 (1.0 %) Asians, 69 (11.5 %) American Indians and 2 (0.3 %) unknown. The data has been summarized according to age groups in decades, gender, geographical area and the number of reactive, non-reactive and equivocal results.

Expected results for the Elecsys Anti-HAV IgM assay in subjects from low prevalence areas for Hepatitis A								
Age range	Gender	Elecsys Anti-HAV IgM results						Total
		Reactive		Equivocal		Non-reactive		
		N	Percent	N	Percent	N	Percent	
11 - 20	Female	0	0.00	0	0.00	1	100	1
	Male	0	0.00	0	0.00	1	100	1
21 - 30	Female	0	0.00	0	0.00	7	100	7
	Male	0	0.00	0	0.00	6	100	6
31 - 40	Female	0	0.00	0	0.00	21	100	21
	Male	0	0.00	0	0.00	2	100	2
41 - 50	Female	0	0.00	0	0.00	22	100	22
	Male	0	0.00	0	0.00	13	100	13
51 - 60	Female	0	0.00	0	0.00	42	100	42
	Male	0	0.00	0	0.00	19	100	19
61 - 70	Female	0	0.00	0	0.00	51	100	51
	Male	0	0.00	0	0.00	28	100	28
71 - 80	Female	0	0.00	0	0.00	48	100	48

The prevalence rate for reactive anti-HAV IgM antibody in specimens collected in a low prevalence region, Eastern states of the U.S. (Indiana), was 0.00 %.

Expected results for the Elecsys Anti-HAV IgM assay in subjects from high prevalence areas for Hepatitis A								
Age range	Gender	Elecsys Anti-HAV IgM results						Total
		Reactive		Equivocal		Non-reactive		
		N	Percent	N	Percent	N	Percent	
11 - 20	Female	0	0.00	0	0.00	8	100	8
	Male	0	0.00	0	0.00	5	100	5
21 - 30	Female	0	0.00	0	0.00	17	100	17
	Male	0	0.00	0	0.00	11	100	11
31 - 40	Female	0	0.00	0	0.00	27	100	27
	Male	0	0.00	0	0.00	13	100	13
41 - 50	Female	0	0.00	0	0.00	52	100	52
	Male	0	0.00	0	0.00	18	100	18
51 - 60	Female	0	0.00	0	0.00	54	100	54
	Male	0	0.00	0	0.00	24	100	24
61 - 70	Female	0	0.00	0	0.00	25	100	25
	Male	1	4.00	0	0.00	24	96.0	25
71 - 80	Female	0	0.00	0	0.00	12	100	12
	Male	0	0.00	0	0.00	7	100	7
> 80	Female	0	0.00	0	0.00	1	100	1
	Male	0	0.00	0	0.00	0	0.00	0
un-known	Female	0	0.00	0	0.00	1	100	1
	Male	0	0.00	0	0.00	0	0.00	0
All ages	Female	0	0.00	0	0.00	197	100	197

	Male	1	0.97	0	0.00	102	99.0	103
Total		1	0.33	0	0.00	299	99.7	300

Prevalence rate for reactive anti-HAV IgM antibody in specimens collected in a high prevalence region, Western states of the U.S. (New Mexico), was 0.33 %.

PRECISION/REPRODUCIBILITY:

Precision and Reproducibility were determined using Elecsys reagents, human sera, and controls. Precision results were collected on three Elecsys 2010 analyzers using a single lot of reagent. PreciControl Anti-HAV IgM 1 and 2 (PC1 and PC2) materials and three human serum pools (high negative HSP1, low positive HSP2 and moderately positive HSP3) were tested in replicates of 2 in 2 runs/day for 20 days according to the CLSI EP15-A2/EP5-A2.

Precision on Elecsys 2010 analyzer					
		Repeatability[f]		Intermediate precision[g]	
Sample	Mean	SD	CV	SD	CV
	COI	COI	%	COI	%
HSP1	0.884	0.018	2.1	0.035	4.0
HSP2	1.14	0.030	2.6	0.051	4.5
HSP3	2.23	0.060	2.7	0.094	4.2
PC A-HAVIGM1	0.230	0.004	1.5	0.009	4.1
PC A-HAVIGM2	2.04	0.050	2.5	0.098	4.8

[f] Repeatability = within-run precision

[g] Intermediate precision = between-run and between-day variation

Precision on MODULAR ANALYTICS E170 analyzers					
		Repeatability[h]		Intermediate precision[i]	
Sample	Mean	SD	CV	SD	CV
	COI	COI	%	COI	%
HSP1	0.929	0.018	1.9	0.040	4.4
HSP2	1.22	0.024	2.0	0.060	4.9
HSP3	2.36	0.052	2.2	0.110	4.7
PC A-HAVIGM1	0.217	0.005	2.3	0.010	4.5
PC A-HAVIGM2	2.13	0.043	2.0	0.110	5.1

[h] Repeatability = within-run precision

[i] Intermediate precision = between-run and between-day variation

Reproducibility was performed on three external sites on three different Elecsys 2010 and cobas e 411 analyzers. Three human serum pools (high negative HSP3, low positive HSP1 and moderately positive HSP2) were tested in replicates of 3 in 2 runs/day for 5 days according to the CLSI EP15-A2/EP5-A2.

Reproducibility on Elecsys 2010 analyzer											
		Repeat-ability[j]		**Inter-mediate precision[k]**		**Between-day**		**Between-site**		**Repro-ducibility (total)**	
Sample	Mean	SD[l]	CV	SD	CV	SD	CV	SD	CV	SD	CV
	COI[m]	COI	%	COI	%	COI	%	COI	%	COI	%
HSP1	0.917	0.031	3.4	0.007	0.8	0.003	0.3	0.023	2.5	0.039	4.3
HSP2	1.12	0.034	3.0	0.024	2.1	0.000	0.0	0.025	2.2	0.048	4.3
HSP3	2.24	0.086	3.8	0.050	2.2	0.000	0.0	0.029	1.3	0.104	4.6
PC[n] 1	0.239	0.006	2.6	0.000	0.0	0.004	1.9	0.010	4.4	0.013	5.4
PC 2	1.65	0.049	3.0	0.021	1.3	0.058	3.5	0.027	1.6	0.083	5.1

[j] Repeatability = within-run precision

[k] Intermediate precision = between-run

[l] SD = standard deviation

[m] COI = cutoff index

[n] PC = PreciControl A-HAVIGM

Reproducibility on MODULAR ANALYTICS E170 analyzer											
		Repeat-ability[j]		**Inter-mediate precision[k]**		**Between-day**		**Between-site**		**Repro-ducibility (total)**	
Sample	Mean	SD[l]	CV	SD	CV	SD	CV	SD	CV	SD	CV
	COI[m]	COI	%	COI	%	COI	%	COI	%	COI	%
HSP1	0.923	0.019	2.1	0.020	2.1	0.000[0]	0.0	0.014	1.5	0.031	3.4
HSP2	1.13	0.026	2.3	0.024	2.1	0.000[0]	0.0	0.000[0]	0.0	0.035	3.1
HSP3	2.30	0.046	2.0	0.078	3.4	0.000[0]	0.0	0.000[0]	0.0	0.091	4.0
PC[n] 1	0.213	0.004	1.9	0.000[o]	0.0	0.001	0.4	0.016	7.7	0.017	8.0
PC 2	1.67	0.048	2.9	0.047	2.8	0.000[0]	0.0	0.018	1.1	0.069	4.2

[j] Repeatability = within-run precision
[k] Intermediate precision = between-run
[l] SD = standard deviation
[m] COI = cutoff index
[n] PC = PreciControl A-HAVIGM
[o] SD of zero due to variance contributed by particular component was below stated significant figure.

CROSS-REACTIVITY:

The specificity of the Elecsys Anti-HAV IgM assay was evaluated by testing a total of 211 specimens representing a variety of disease states (ANA, CMV, EBV, HBV, HCV, HIV, HSV, Mumps/Rubeola, Parvo B19, Rubella, Toxoplasmosis, and VZV).

The testing results are summarized in the table below.

Cross- reactant	No. tested	Elecsys Anti-HAV IgM/ Reference Neg/Neg	Elecsys Anti-HAV IgM/ Reference Equivocal/ Neg	Elecsys Anti-HAV IgM/ Reference Neg/ Equivocal	Elecsys Anti-HAV IgM/ Reference Pos/Pos
ANA	11	10	0	1	0
CMV	13	13	0	0	0
EBV	16	16	0	0	0
Elevated IgG	13	13	0	0	0
Elevated IgM	12	11	1	0	0
HBV	20	20	0	0	0
HCV	11	11	0	0	0
HIV	11	11	0	0	0
HSV	11	11	0	0	0
Mumps/ Rubeola	15	15	0	0	0
Parvo B19	15	15	0	0	0
Rheumatoid factor	12	12	0	0	0
Rubella	20	20	0	0	0
Toxoplasmosis	16	16	0	0	0
VZV	15	15	0	0	0
Total	211	209	1	1	0

HAMA effect was tested by comparing the recovery of 10 human serum samples spiked with HAMA versus 10 unspiked aliquots of samples. No HAMA effect was found.

POTENTIALLY INTERFERING SUBSTANCES:

The assay is unaffected by icterus (bilirubin < 855 µmol/L or < 50 mg/dL), hemolysis (Hb < 0.623 mmol/L or < 1.0 g/dL), lipemia (Intralipid < 2000 mg/dL), and biotin < 205 nmol/L or < 50 ng/mL. There is no high-dose hook effect up to 16 COI.

In vitro tests were performed on 18 commonly used pharmaceuticals (Acetylcystein, Ampicillin, Ascorbic acid, Ca- Dobesilate, Cyclosporine, Cefoxitin, Heparin, Intralipid, Levodopa, Methyldopa, Metronidazole, Phenylbutazone, Tetracycline, Acetylsalicylic Acid, Rifampicin, Acetaminophen, Ibuprofen, Theophylline). No interference with the assay was found.

SERUM AND PLASMA COMPARISON:

The following tables summarize the results for the comparison between serum and 4 plasma matrices.

Plasma matrix	Number of positive specimens showing recovery to serum within various ranges		
	< 10 %	10 - 15 %	> 15 %
Li-heparin	9	1	0
Na-heparin	9	1	0
K2-EDTA	10	0	0
Sodium citrate	9	1	0

Plasma matrix	Number of borderline specimens showing recovery to serum within various ranges		
	< 10 %	10 - 15 %	> 15 %
Li-heparin	15	0	0
Na-heparin	15	0	0
K2-EDTA	15	0	0
Sodium citrate	12	3	0

Plasma matrix	Number of negative specimens showing recovery to serum within various ranges		
	< 0.1 COI	0.1 - 0.3 COI	> 0.3 COI
Li-heparin	20	0	0
Na-heparin	20	0	0
K2-EDTA	20	0	0
Sodium citrate	20	0	0

DEPARTMENT OF HEALTH & HUMAN SERVICES

Food and Drug Administration
10903 New Hampshire Avenue
Document Mail Center – WO66-0609
Silver Spring, MD 20993-0002

Ms. Kelly French, RN, BSN, RAC
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Indianapolis, IN 46250-0416

JUN 22 2010

Re: K093955

Trade/Device Name:	Elecsys® Anti-HAV IgM
	Elecsys® PreciControl Anti-HAV IgM
Regulation Number:	21 CFR §866.3310
	21 CFR §862.1660
Regulation Name:	Hepatitis A Virus Serological Assays
	Quality Control Material
Regulatory Class:	Class II
Product Code:	LOL
	JJX
Dated:	March 23, 2010
Received:	March 24, 2010

Dear Ms. French:

We have reviewed your Section 510(k) premarket notification of intent to market the device referenced above and have determined the device is substantially equivalent (for the indications for use stated in the enclosure) to legally marketed predicate devices marketed in interstate commerce prior to May 28, 1976, the enactment date of the Medical Device Amendments, or to devices that have been reclassified in accordance with the provisions of the Federal Food, Drug, and Cosmetic Act (Act) that do not require approval of a premarket approval application (PMA). You may, therefore, market the device, subject to the general controls provisions of the Act. The general controls provisions of the Act include requirements for annual registration, listing of devices, good manufacturing practice, labeling, and prohibitions against misbranding and adulteration.

If your device is classified (see above) into either class II (Special Controls) or class III (PMA), it may be subject to additional controls. Existing major regulations affecting your device can be found in the Code of Federal Regulations, Title 21, Parts 800 to 898. In addition, FDA may publish further announcements concerning your device in the Federal Register.

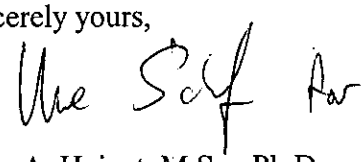
Please be advised that FDA's issuance of a substantial equivalence determination does not mean that FDA has made a determination that your device complies with other requirements of the Act or any Federal statutes and regulations administered by other Federal agencies. You must comply with all the Act's requirements, including, but not limited to: registration and listing (21

CFR Part 807); labeling (21 CFR Part 801); medical device reporting (reporting of medical device-related adverse events) (21 CFR 803); good manufacturing practice requirements as set forth in the quality systems (QS) regulation (21 CFR Part 820); and if applicable, the electronic product radiation control provisions (Sections 531-542 of the Act); 21 CFR 1000-1050.

If you desire specific advice for your device on our labeling regulation (21 CFR Part 801), please go to http://www.fda.gov/AboutFDA/CentersOffices/CDRH/CDRHOffices/ucm115809.htm for the Center for Devices and Radiological Health's (CDRH's) Office of Compliance. Also, please note the regulation entitled, "Misbranding by reference to premarket notification" (21CFR Part 807.97). For questions regarding the reporting of adverse events under the MDR regulation (21 CFR Part 803), please go to http://www.fda.gov/MedicalDevices/Safety/ReportaProblem/default.htm for the CDRH's Office of Surveillance and Biometrics/Division of Postmarket Surveillance.

You may obtain other general information on your responsibilities under the Act from the Division of Small Manufacturers, International and Consumer Assistance at its toll-free number (800) 638-2041 or (301) 796-7100 or at its Internet address http://www.fda.gov/MedicalDevices/ResourcesforYou/Industry/default.htm.

Sincerely yours,



Sally A. Hojvat, M.Sc., Ph.D.
Director
Division of Microbiology Devices
Office of *In Vitro* Diagnostic Device Evaluation and Safety
Center for Devices and Radiological Health

Enclosure

Indication for Use

510(k) Number: K093955

Device Name: Elecsys Anti-HAV IgM Assay

Indication For Use:

The Roche Elecsys Anti-HAV IgM immunoassay is used for the in vitro qualitative detection of IgM antibodies to hepatitis A virus (anti-HAV IgM) in human serum and plasma (potassium EDTA, lithium or sodium heparin, sodium citrate). The assay is intended for use as an aid in the laboratory diagnosis of an acute or recently acquired hepatitis A virus infection.

Assay results, in conjunction with other laboratory results and clinical information, may be used to provide presumptive evidence of infection with hepatitis A virus in persons with signs and symptoms of hepatitis and in persons at risk for hepatitis A infection.

The electrochemiluminescence immunoassay "ECLIA" is intended for use on Elecsys and **cobas e** immunoassay analyzers.

Device Name: Elecsys Anti-HAV IgM PreciControl

Indication For Use:

Elecsys PreciControl Anti-HAV IgM is used for quality control of the Elecsys Anti-HAV IgM immunoassay on the Elecsys and **cobas e** immunoassay analyzers.

Prescription Use __X____ And/Or Over the Counter Use ____.
(21 CFR Part 801 Subpart D) (21 CFR Part 801 Subpart C)

(PLEASE DO NOT WRITE BELOW THIS LINE; CONTINUE ON ANOTHER PAGE IF NEEDED)

Concurrence of CDRH, Office of In Vitro Diagnostic Device Evaluation and Safety (OIVD)

Division Sign-Off
Office of In Vitro Diagnostic Device
Evaluation and Safety

510(k) K093955